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Patent Abstracts of Japan

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PUBLICATION DATE : 13-11-98

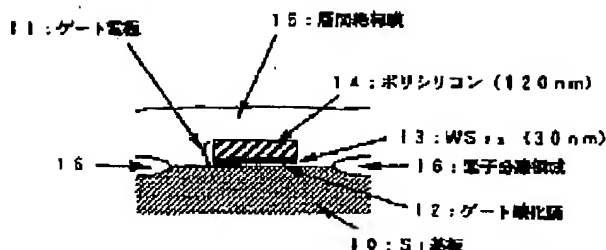
APPLICATION DATE : 22-04-97
APPLICATION NUMBER : 09105000

APPLICANT : SONY CORP;

INVENTOR : KOMATSU YUJI;

INT.CL. : H01L 29/78 H01L 21/336 H01L 21/285
H01L 21/8238 H01L 27/092

TITLE : SEMICONDUCTOR DEVICE AND
FABRICATION THEREOF



ABSTRACT : PROBLEM TO BE SOLVED: To provide a semiconductor device and a fabrication method thereof in which the gate electrode can be made thick enough to block implantation of ions into a channel when a self-aligned diffusion layer is formed by ion implantation even if a material having a work function close to the midgap of silicon is employed in the gate electrode and an undue tensile stress is not applied to a gate oxide.

SOLUTION: A gate electrode 11 is composed of WSi_x 13 and polysilicon 14 and the lower layer of WSi_x touches a gate oxide 12. Since the work function of WSi_x is close to the midgap of silicon, threshold voltage V_{th} can be controlled to a correct level. Tensile stress being applied to the gate oxide can be lessened by making thin the WSi_x layer and the entire gate electrode can be made thick enough by depositing polysilicon on the WSi_x.

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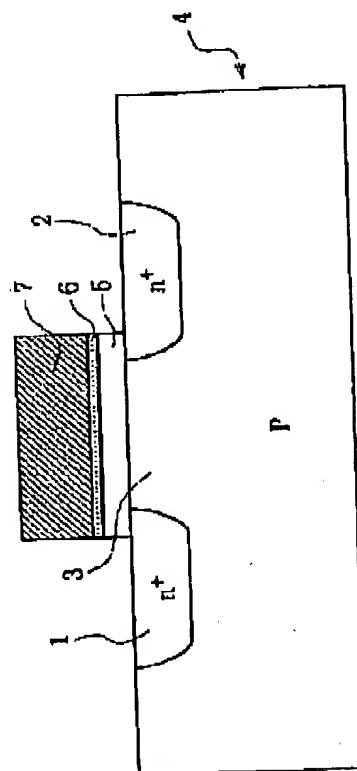
APPLICATION DATE : 30-05-00
APPLICATION NUMBER : 2000159471

APPLICANT : UNIV NAGOYA;

INVENTOR : SAKASHITA MITSUO;

INT.CL. : H01L 29/78 H01L 21/28 H01L 29/43

TITLE : MOS DEVICE AND ITS
MANUFACTURING METHOD



ABSTRACT : PROBLEM TO BE SOLVED: To prevent the mutual conductance and current drive capacity of a MOS transistor from decreasing.

SOLUTION: A carbon compound layer 6 that is disposed between a gate oxide film 5 and a polycrystalline silicon gate electrode 7 prevents an impurity in the polycrystalline silicon gate electrode 7 from proceeding to the gate oxide film 5. As a result, by thinning the gate oxide film 5, gate capacity cannot be decreased remarkably, thus preventing mutual conductance and current drive capacity from decreasing.

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